

DETAILED ACTION

This communication is in response to RCE received on 5/22/08.

Claims 4, 7, 20 and 21 are presented for examination.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 7 and 20 - 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oudet et al. (5,532,585) in view of Miyata et al. (6,559,637).

As to claim 4, Oudet et al. (hereinafter Oudet) discloses a position sensor comprising a non-contact position sensor comprising: a slider (12) having a magnet (3) having a front face along a longitudinal direction of the magnet that has one polarity and a back face along the longitudinal direction of the magnet that has an opposite polarity; a main stator (1) consisting of a magnetic body having a first pair of opposed walls (4, 5) forming an area in which the slider enters while keeping a predetermined clearance, the first pair of opposed walls (4, 5) corresponding to the front and back faces of the magnet (7), and a first gap (2) continuing into the opposed walls (4, 5); a magnetically-sensitive sensor (7) arranged in the first gap to detect a position of the slider (12) corresponding to a

percentage of the magnet (3) entering the area. Oudet fails to show an assist stator for preventing magnetic flux, which is generated in a part of the magnet that does not enter the area, from leaking out to the main stator, wherein the assist stator has a second pair of opposed walls corresponding to front and back faces of the part of the magnet that does not enter the area and transverse walls extending from the second pair of opposed walls which are separated from each other through a second gap formed between the transverse walls. Miyata et al. (hereinafter Miyata) discloses a non-contact position sensor including an assist stator (12, 14, fig. 5B) for preventing magnetic flux, which is generated in a part of the magnet (10) that does not enter the area, from leaking out to the main stator (11, 13), wherein the assist stator (12, 14) has a second pair of opposed walls (12, 14) corresponding to front and back faces of the part of the magnet (10) that does not enter the area and transverse walls (18, 19) extending from the second pair of opposed walls (12, 14) which are separated from each other through a second gap (G2) formed between the transverse walls (18, 19) (col. 3, lines 41 – 52). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Oudet in view of the teachings of Miyata such that providing an assist stator with a second pair of opposed walls corresponding to front and back faces of the part of the magnet that does not enter the area and transverse walls extending from the second pair of opposed walls which are separated from each other through a second gap formed between the transverse walls would increase the efficiency of

the device by preventing the flux leakage and also the transverse wall would serve as magnetic flux converging portions (col. 3, lines 41 - 45).

As to claims 7, Oudet discloses a position sensor comprising a slider (12) having a magnet (3) having a front face along a longitudinal direction of the magnet that has one polarity and a back face along the longitudinal direction of the magnet that has an opposite polarity; a main stator (1) consisting of a magnetic body having a first pair of opposed walls (4, 5) forming a first area in which the slider enters while keeping a predetermined clearance, the first pair of opposed walls (4, 5) corresponding to the front and back faces of the magnet (3), and a first gap (2) continuing into the opposed walls and a magnetically-sensitive sensor (7) arranged in the first gap of the main stator (1) to detect a position of the slider corresponding to a percentage of the magnet (3) entering the first area of the main stator (1) and a magnetically-sensitive sensor (7) arranged in the first gap to detect a position of the slider (12) corresponding to a percentage of the magnet (3) entering the first area. Oudet fails to show an assist stator consisting of a magnetic body having a second pair of opposed walls forming a second area which allows the slider to move while keeping a predetermined clearance and transverse walls extending from the second pair of opposed walls which are separated from each other through a second gap formed between the transverse walls, wherein there is a third gap between the assist stator and the main stator. Miyata et al. (hereinafter Miyata) discloses a non-contact position sensor including an assist stator (12, 14) consisting of a magnetic body having a second pair of opposed walls (12, 14) forming a second area which allows the slider (10)

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to move while keeping a predetermined clearance and transverse walls (18, 19) extending from the second pair of opposed walls (12, 14) which are separated from each other through a second gap (G2) formed between the transverse walls (18, 19), wherein there is a third gap (51, 52) between the assist stator (12, 14) and the main stator (11, 13). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Oudet in view of the teachings of Miyata such that providing an assist stator consisting of a magnetic body having a second pair of opposed walls forming a second area which allows the slider to move while keeping a predetermined clearance and transverse walls extending from the second pair of opposed walls which are separated from each other through a second gap formed between the transverse walls, wherein there is a third gap between the assist stator and the main stator would increase the efficiency of the device by preventing the flux leakage and also the transverse wall would serve as magnetic flux converging portions (col. 3, lines 41 - 45).

As to claims 20 and 21, Oudet discloses that the magnetically-sensitive sensor (7) is provided in a direction perpendicular to a moving direction of the slider (3).

Response to Arguments

Applicant's arguments with respect to claims 4, 7, 20 and 21 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Reena Aurora whose telephone number is 571-272-2263. The examiner can normally be reached on Monday - Friday, 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, P. Assouad can be reached on 571-272-2210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Reena Aurora

/Reena Aurora/
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